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REMARKS

Claims 1-4, 7-8, 11, 18-20, 23, 24, 33-36, 39-40, 43, 50-52, 55-56 and 65-66 were rejected under 35 U.S.C. 102(e) as being anticipated by Harvey et al., U.S. patent 6,657,936. The remaining claims were rejected under 35 U.S.C. 103(a) as being unpatentable over Harvey et al. in view of Bae, U.S. patent 6,242,960. Those rejections are respectfully traversed and reconsideration is requested.

Independent claims 1 and 33 are directed to a data transmitter which controls the transition time of a data signal, that is the time that it takes for the data signal to change from one state to the next. As illustrated in Figure 2, an input data signal d_{in} has very short transition times from low to high and from high to low. By contrast, the data signal d_{out} has a substantially longer transition time t_r from low to high. This long transition time is obtained by applying the data signal to parallel delay circuits as illustrated, for example, in Figures 1 and 3. The data signal output from each of those delays has a transition time t_{r1} illustrated in Fig. 2. However, by summing the multiple delayed signals at a common output node, it can be seen that the combined transition time of the summed signals $d1'-d4'$ provides the longer transition t_r of signal d_{out} .

Neither of the cited references allows the determination of a transition time of a data signal.

As illustrated in Figure 2A, Harvey et al. is directed to a selection of a delay Δt_1 of a laser control signal. As illustrated in Figure 6, that delay is set by selecting one of the variously delayed inputs to the MUX 612 to generate a signal 614 delayed by a course amount and then further delaying that signal and selecting one input to the MUX 632 to provide a signal on line 634 which is delayed by the course amount and the fine amount. Note, however, that Harvey et al. does not combine delayed data signals, but only selects a single delayed signal in each multiplexer. As such, Harvey et al. does not address the transition time of an individual signal, that is, the time that it takes for a data signal to change from one state to the next, such as from low to high. In fact, in each of Figures 1A, 1B, 2A and 2B, the control signal is illustrated with a

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transition time of zero at each edge. Whereas the present invention is directed to extending the transition time of a data input, Harvey et al. is directed to selecting that transition time without extension, that is, without regard to transition time of an edge.

Each of claims 1 and 33 recites that different delays are applied to a data input and that the delayed data signals are combined in a data output having a transition time determined by differences in delays applied to the data input. Harvey et al. does not combine delayed data signals but rather selects a single delayed data signal in each of the multiplexers 612 and 632. Further, Harvey et al. does not determine the transition time of the data output, that is, a rise time or a fall time (page 1, line 7 of the present application) of the data output.

With respect to claims 18 and 50, prior art transition control systems control the transition time to be a fixed value, regardless of the bit time of the system. With a fixed transition time, a signaling system operating at a lower speed is forced to use a transition time optimized for the highest possible speed of operation, unduly stressing the bandwidth of the transmission medium. In accordance with claims 18 and 50, the transition time of the controlled data signal is proportional to bit time of the bit clock. As already discussed, Harvey et al. does not address transition time of a data signal at all, so there can be no suggestion of transition time proportional to bit time.

Nor does Harvey et al. teach the dependent claims.

There is no suggestion to combine Bae with Harvey et al., and even if combined, Bae fails to teach the deficiencies of Harvey et al. discussed above. In particular, Bae teaches nothing toward determination of a transition time of a data signal.

For at least the reasons presented in the last response, Bae also fails to teach the features of the dependent claims.

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CONCLUSION

In view of the above remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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